

Natural Development Server Installation under OS/390

This document describes how to install a Natural Development Server under the operating system OS/390.

The following topics are covered:

- Prerequisites
 - Content of the Development Server Distribution Tape
 - Installation Procedure
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Prerequisites

- OS/390 must be installed.
Version as specified under Operating/Teleprocessing Systems Required in the current Natural Release Notes.
- The current Natural version for Mainframes must be installed.
- If you are using Predict and you have to migrate to a Predict version as specified under Natural and Other Software AG Products in the current Natural Release Notes, you are strongly recommended to migrate to the newer Predict version **before** you install the Natural Development Server.
- List XRef Version 1.1.1
(List XRef is an internal product with product code PXR and is included in the delivery for the Natural Development Server)
- The Software AG Editor must be installed. You are recommended to set the size of the editor buffer pool to 1024k.
If you are using SMA, the necessary modules are linked when the SMA parameter SAG-EDITOR is set. If you are installing without SMA, see the Natural Installation Guide for Mainframes, Installing the Software AG Editor.



If you do not migrate to a Predict version as specified under Natural and Other Software AG Products in the current Natural Release Notes **before** starting the Natural Development Server installation, you will have to define a new Natural system file (FNAT) and a new development server file (FDIC). The current Natural version for Mainframes and the desired additional products must have been loaded on the Natural system file FNAT before you start the installation of the Natural development server.

The prerequisites required for the operation of a Remote Development Client must be fulfilled in addition. For details, refer to the Natural for Windows Version 5.1 documentation.

Content of the Development Server Distribution Tape

The installation tape contains the datasets listed in the table below. The sequence of the datasets and the number of library blocks needed are shown in the **Report of Tape Creation** which accompanies the installation tape.

There are two components on the tape:

- Natural Development Server
- System Management Hub for Natural

The following datasets refer to the Natural Development Server. For details on the System Management Hub, refer to System Management Hub for Natural Manager.

dataset Name	Contents
NDV nnn .LOAD	Contains the load modules of the development server. See Natural Development Server on Mainframes.
NDV nnn .EXPL	Contains the sample programs required for using the tutorial. See First Steps with Natural Single Point of Development.
NDV nnn .INPL	Contains the transaction processor. See Natural Development Server on Mainframes.
NDV nnn .ERRN	Contains the error messages of the transaction processor.
NDV nnn .SYSF	Contains the FDT of the Development Server File (the layout is identical with NDV nnn .SYSF provided with a Predict version as specified under Natural and Other Software AG Products in the current Natural Release Notes).

The notation nnn in dataset names represents the version number of the product.

Installation Procedure

To install the Natural Development Server in the OS/390 environment, perform the following steps:

Copying the Tape Contents to Disk

If you are using System Maintenance Aid (SMA), refer to the SMA documentation (included on the current edition of the Natural documentation CD).

If you are **not** using SMA, follow the instructions below.

This section explains how to:

- Copy data set COPY.JOB from tape to disk.
- Modify this data set to conform with your local naming conventions.

The JCL in this data set is then used to copy all data sets from tape to disk.

If the datasets for more than one product are delivered on the tape, the dataset COPY.JOB contains the JCL to unload the datasets for all delivered products from the tape to your disk.

After that, you will have to perform the individual install procedure for each component.

Step 1 - Copy data set COPY.JOB from tape to disk

The data set COPY.JOB (label 2) contains the JCL to unload all other existing data sets from tape to disk. To unload COPY.JOB, use the following sample JCL:

```
//SAGTAPE JOB SAG,CLASS=1,MSGCLASS=X
//* -----
//COPY EXEC PGM=IEBGENER
//SYSUT1 DD DSN=COPY.JOB,
// DISP=(OLD,PASS),
// UNIT=(CASS,,DEFER),
// VOL=(,RETAIN,SER=<Tnnnnn>),
// LABEL=(2,SL)
//SYSUT2 DD DSN=<hilev>.COPY.JOB,
// DISP=(NEW,CATLG,DELETE),
// UNIT=3390,VOL=SER=<vvvvvv>,
// SPACE=(TRK,(1,1),RLSE),
// DCB=*.SYSUT1
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//
```

Where:

<hilev> is a valid high level qualifier

<Tnnnnn> is the tape number

<vvvvvv> is the desired volser

Step 2 - Modify COPY.JOB to conform with your local naming conventions

There are three parameters you have to set before you can submit this job:

- Set HILEV to a valid high level qualifier.
- Set LOCATION to a storage location.
- Set EXPDT to a valid expiration date.

Step 3 - Submit COPY.JOB

Submit COPY.JOB to unload all other data sets from the tape to your disk.

Note that the copy job copies the datasets of both the Natural Development Server and the System Management Hub for Natural.

Step 1: Apply the following corrections before you start to install NDV

1. If you have Predict Version 4.2.1 installed, apply the PRD421 Summary IUPD Update (PD421In) to your Natural system file (FNAT).
2. If you have PXR 1.1.1 installed, apply the PXR Summary IUPD Update (PX111In) to your Natural system file (FNAT).

Step 2: Create a development server configuration file and sample Clist

(Job I009 / Step 8410,8420,8430)

See sample member NDVCONFIG on dataset NDVnnn.JOBS.

Step 8430 creates a sample batch job to PING and TERMINATE an NDV server. See sample member NDVBATCH on dataset NDVnnn.JOBS.

Described in the section Development Server Configuration under OS/390.

The following parameters of the configuration file have to be defined. For the other parameters, the default values may be used:

FRONTEND_NAME	Specify the name of the NDV server frontend module you generate in Step 6.
PORT_NUMBER	Specify the TCP/IP port number under which the server can be connected..

Step 8420 creates a sample CLIST to PING and TERMINATE an NDV server. See sample member NDVCLIST on dataset NDVnnn.JOBS.

Step 3: Load FDIC system file

(Job I050, Step 8403)

If you do not use Predict at all or if you have not yet migrated to a Predict version as specified under [MF::MF]Natural and Other Software AG Products[MF::MF] in the current Natural Release Notes, create the development server file, using the dataset NDVnnn.SYSF.

The layout of the Development Server File corresponds to the layout of the Predict Version 4.2 or above dictionary file.

Note: If you have a Predict version installed as specified under [MF::MF]Natural and Other Software AG Products[MF::MF] in the current Natural Release Notes, you can ignore this step.

Step 4: Assemble and link ADALNK

(Job I055, Step 8401)

The server environment requires a reentrant ADALINK module.

Link ADALNK using the RENT option.

Step 5: Assemble NATOS with LE370=YES

(Job I055, Steps 8410, 8420)

- Job I055, Step 8410 starts the batch program IEBUPDATE to create the source member.
- Job I055, Step 8420 assembles and links NATOS.
- If Predict XRef data is to be used:
set the XREF parameter to ON or FORCE.

Adapt your Natural parameter module with the new parameters and assemble it.

Link the new Natural parameter module and, if Predict is to be used, the PRDXREF module from the load library NAT31n.LOAD to the environment-independent part of the Natural nucleus.

Step 6: Create NATPARM and NDV server frontend module

(Job I060, Steps 8410, 8420, 8430)

- Job I060, Step 8410 starts the batch program IEBUPDATE.
- Job I060, Step 8420 assembles and links NATPARM.
- Job I060, Step 8430 link the NDV server frontend module.

Step 7: Load Natural objects, error messages and samples for NDV

(Job I061, Steps 8450,8451,8450)

During NDV INPL the assigned FDIC/FSEC file is initialized with NDV specific information.

- Load objects from dataset NDVnnn.INPL onto your Natural system file (FNAT) using the INPL command. The parameter FDIC must have been set to point to your development server file.
- Load the error messages from dataset NDVnnn.ERRN using ERRLODUS.
- To use the tutorial (see First Steps with Natural Single Point of Development), load the sample programs from dataset NDVnnn.EXPL to your Natural system file.

Step 8: Load Natural objects for Predict XREF

(Job I061, Step 0601)

If you do not have PXR Version 1.1.1 installed yet, perform this step.

Load PXRnnn.INPL.

Note: If you are using Predict, but do not have a Predict version installed as specified under [MF::MF]Natural and Other Software AG Products[MF::MF] in the current Natural Release Notes and you intend to use existing XRef data, you have to recatalog the applications which will use the development server file.

Step 9: Copy DDMs and processing rules to FDIC

If you use a Predict Version 4.2 system file FDIC as development server file (FDIC), ignore this step.

If a Predict version as specified under [MF::MF]Natural and Other Software AG Products[MF::MF] in the current Natural Release Notes has not been installed or if you do not use a Predict Version 4.2 system file FDIC as development server file (FDIC), you have to copy the existing DDMs and processing rules to the development server file (FDIC), using the copy function of the Natural utility SYSMAIN.

Step 10: Create server startup JCL

(Job I200, Step 8415)

Described in the section Development Server Configuration under OS/390. See sample member NDVSTART on dataset NDVnnn.JOBS.

Sample:

```
//          PROC  SRV=SAGNDV
//NDV       EXEC  PGM=NATRDEVS ,
// REGION=4000K, TIME=1440, PARM=' POSIX(ON) , TRAP(ON,NOSPIE) /&SRVY
//STEPLIB DD   DISP=SHR, DSN=NDVvrS.LOAD
//          DD   DISP=SHR, DSN=SMA.LOAD
//SYSUDUMP DD   SYSOUT=X
//CEEDUMP  DD   SYSOUT=X
//CMPRINT  DD   SYSOUT=X
//STGCONFG DD   DISP=SHR,
//          DSN=NDV.CONFIG(&SRV)
//STGTRACE DD   SYSOUT=X
//STGSTDO  DD   SYSOUT=X
//STGSTDE  DD   SYSOUT=X
//SYSOUT   DD   SYSOUT=X
```

Note: The NDV server account must be defined in OS/390 UNIX System Services (OE segment). If the server account is not defined, the server ends with U4093 and system message CEE5101C in the trace file.

Step 11: NDV Clients must be defined to Natural Security

If Natural Security (NSC) is installed and an NDV client is not defined, the map environment returns an NSC error.

If you logon to the server from an NDV client, make sure that the user who is defined in Natural Security has a default library or a private library defined. Otherwise, error message NAT0815 will occur.